

# EMBRACING MICRO MOBILITY

Embracing micro mobility as  
a component of our evolving  
transport system

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# 01 What is micro mobility?

Micro mobility refers to a range of small, lightweight devices operating at speeds typically below 25 km/h (15 mpg) and is ideal for trips up to 10 km.

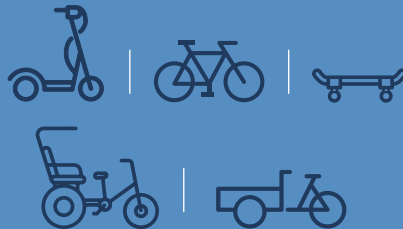
## MICRO MOBILITY CAN BE

- Human-powered or electric
- Privately owned or shared
- Most commonly low speed (25km/h top speed) or sometimes moderate speed (45 km/h top speed)

## MICRO MOBILITY CANNOT BE

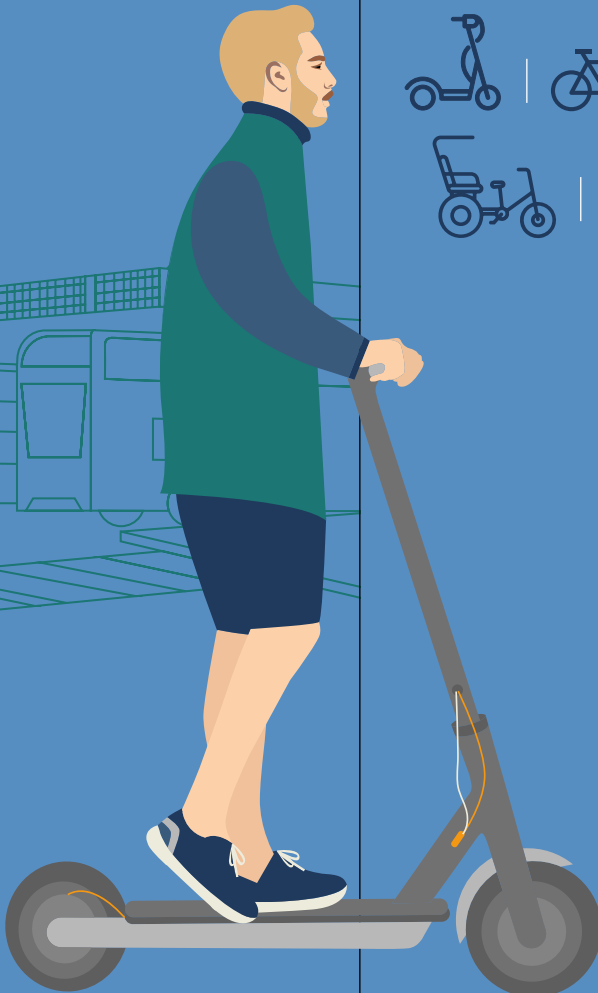
- Internal combustion engine powered
- High speed (exceeds 45 km/h top speed)

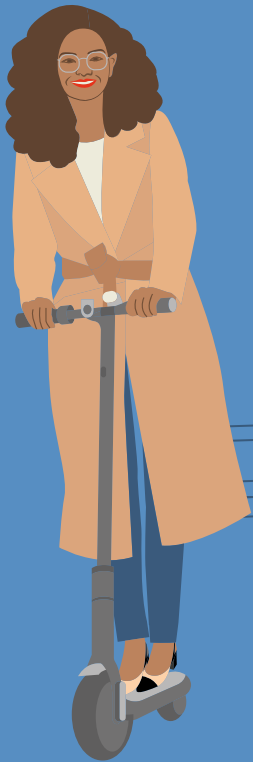
Figure 1: Inspired by 'A definition of what micro mobility includes', Source: Institute for Transportation and Development Policy



Most people in cities do not own cars.

**Micro mobility  
unlocks more city  
for more people.**





**Micro mobility increases access to public transportation.**

This replaces cars for short trips.

**E-micro mobility expands the areas riders can travel easily without a car.**

Electric devices make micro mobility more attractive to people who may not use traditional 2 or 3-wheelers.



0 m

400 m

1.6 km

4 km

# Embracing micro mobility

## Embracing micro mobility as a component of our evolving transport system

Micro Mobility offers significant and novel opportunities to reduce emissions, congestion, and improve accessibility – if planned for and managed well. As national provision for legalising and regulating light electric vehicles is brought forward, the Cambridge Ahead Transport Group has considered the opportunities and risks associated with micro mobility in city regions like Cambridge and what we can learn from several trials which are already underway in our region. We find that action is needed across national government, local government and local employers and institutions to embrace these new forms of transport:

### NATIONAL GOVERNMENT

- Introduce a regulatory regime that focuses on the safe, equitable, and sustainable adoption of micro mobility – creating a framework for a balance between private and shared micro mobility.
- Establish key factors such as minimum age of users, maximum speeds, and consideration of suitable infrastructure usage for different forms of micro mobility.

### LOCAL GOVERNMENT

- Develop forthcoming transport plans that set out a defined role for micro mobility in our networks – including an ambition to transform the city's infrastructure network and give road hierarchy prioritisation to micro mobility vehicles over cars.
- Future public micro mobility schemes in the city should follow a single provider model – the collaboration with Voi has been highly effective.
- Consider their role in facilitating affordable access to e-scooters through subsidy drawn from pollution / congestion charging.
- Incorporate micro mobility into the design of mobility hubs such as Park and Ride sites, Train Stations, and other interchanges.

### EMPLOYERS & LOCAL INSTITUTIONS

- Extend rental / leasing provision into major employment locations and other key campuses, building upon learning from how this has worked well under the Voi trial.





**We need to plan  
for a system that  
is safe, equitable,  
and eases travel  
in the Cambridge  
city region.**



# Context

This paper is structured as follows:



A **context** of micro mobility as a transport means is given.



We demonstrate **what we've learnt** in Cambridge from three trials.



The **opportunities and possible risks** of micro mobility are discussed.



We present a **call to action** outlining the responsibilities of national and local government and employers to ensure the success of micro mobility schemes.

As the transport system across the Cambridge city region evolves to meet the needs of a new era, emerging “micro mobility” modes of transport offer significant and novel opportunities to reduce emissions, congestion, and improve accessibility – if planned for and managed well. Micro mobility is particularly suited to cities in the UK where 60% of journeys taken by car are only between 1-3 miles

long<sup>1</sup>. In cities like Cambridge, where a need exists to build capacity across all non-car modes, micro mobility can support this shift to make short journeys less reliant on combustion engine-driven vehicles. Micro mobility also serves as an opportunity to connect other market towns and villages in the Cambridge region, particularly as the Greenways scheme comes into development (Appendix 1).

<sup>1</sup> CPCA (2020) [E-scooters in Cambridge City Centre – new carbon-neutral and socially distanced way to travel launched by Mayor James Palmer and Voi Technology.](#)



# 60%

Micro mobility is particularly suited to cities in the UK where 60% of journeys taken by car are only between 1-3 miles long.

Micro mobility describes transportation means that exclude vehicles without internal combustion engines such as non-electric cars, buses, mopeds, and motorbikes. They are commonly low-speed, and can include e-scooters, cargo bikes, rickshaws, light electric vehicles, skateboards, bicycles and e-bicycles.

This paper focusses on electric scooters, light electric vehicles (LEVs), and e-cargo bikes as forms of micro mobility to assist people and goods to travel more efficiently through Cambridge. We take these as our focus because they require new forms of road and transport policy and have begun being successfully trialled and proven as viable within the city of Cambridge. E-bikes are an important and growing mode of micro mobility, and their uptake has become increasingly popular as a transport connection for longer distances. Although e-bikes rely on overlapping infrastructures and achieve many of the same objectives of e-scooters or e-cargo bikes, at present,

the latter forms of micro mobility require a different set of policy and planning interventions to achieve their potential and thus are the focus of this document.

To ensure that e-scooters, LEV, and e-cargo bikes meet their potential in the city and elevate Cambridge into a vanguard of urban travel, we will need to find a balance between private and shared micro mobility, good integration of micro mobility into journey planning and public transport, and better understanding of the role of light electric vehicles in the delivery of goods. It is also important to consider who the primary users of this form of travel might be and anticipate and respond to any inequalities that might arise from that.

We need to plan for a system that is safe, equitable, and eases travel in Cambridge. We will need to avoid road-use conflict, reductions in active travel, and inequitable access for different communities.



**It is important to consider who the primary users of this form of travel might be and anticipate and respond to any inequalities that might arise from that.**

# 02 What have we learned in Cambridge?

Key learning points from our trials in Cambridge, to embrace micro mobility as a component of our evolving transport system

- The popularity and acceptability of e-scooters in Cambridge may in part be a result of the single-provider, controlled trialling environment. In comparison with e-scooter trials in other cities like Frankfurt in Germany where multiple service providers compete for riders, e-scooters and bikes can be left messily, be abandoned in rivers and parks, and seriously disrupt pedestrian flow. **We therefore recommend that future public micro mobility should not use and conceive of streets and road spaces as 'rider markets', but rather that bidding companies should result in a single winner.** Collaboration between city partners and providers is required to continue success and shape the local market. We have learned that a commissioner/leadership role from the public sector in the rental market has been a big positive, and should be considered for whatever model emerges next
- **Capacity for parking in central areas** creates challenges for users and possibly limits its utility: solutions must be found to build additional, safe parking capacity. Can we for example re-purpose underutilised car parking bays for drop off zones, convert a taxi waiting bay, or at major transport hubs implement better structure to make hired micro mobility solutions easier to find and use?
- **Propagate rental e-scooters and e-bikes and their parking outwards.** The scheme has worked particularly well for the city centre and key transport hubs because of the concentration of scooters and bikes in these locations. We must find a way to create similarly reliable solutions for journeys from locations further out and surrounding villages – this will become increasingly relevant as work on the Greenway network progresses.
- Relatedly, past deployments of OfO and Mobike has generated learning that **models led by venture capital funding are risky.**
- Ensure **adaptability and flexibility** as the city and region evolves.
- Consider funding and pricing models that increase the affordability of Voi to avoid further embedding transport inequalities within the city.



**We need better  
structures to  
make hired micro  
mobility solutions  
easier to find  
and use.**

There are three examples of micro mobility implementation which we can learn from to expand and make non-internal combustion engine forms of transport more sustainable.

## THE VOI E-SCOOTER AND E-BIKE TRIAL:

The Cambridgeshire and Peterborough Combined Authority (CPCA) agreed a 12-month trial with 'Voi' for e-bikes and e-scooters in October 2020. This trial was then extended for a further 12 months. The Voi trial has demonstrated high demand throughout the trial period, with an increase in fleet size to 900 scooters, increasing the number of journeys taken to 650,000 per month (Dec-Jan 2021/22). A survey by Voi of its users suggested that use of Voi e-scooters created a mode-shift away from cars and taxis (32% of respondents).

Voi has demonstrated its use as a 'final mile' solution, with the most popular place to hire e-scooters being the railway

station. Users typically travel for around 11 minutes on an e-scooter, and slightly longer on their e-bikes, although the latter are a less popular mode overall.

Voi is currently working on solutions to parking in the city, where opportunities for users to end their rides is limited. As of March 2022, there were only 4 parking spots in a 200m radius of the Market Square. Meanwhile, the app is opened 120 times per day in this area, indicating high demand. In other cities like Oxford, Voi have experimented with designated parking bays. The company is partnering with businesses and the university across Cambridge to improve provision to key sites (see figure below).

# 32%

In Voi's user survey 32% of respondents said that use of Voi e-scooters created a mode-shift away from cars and taxis.

Growth of Voi at Eddington and West Cambridge

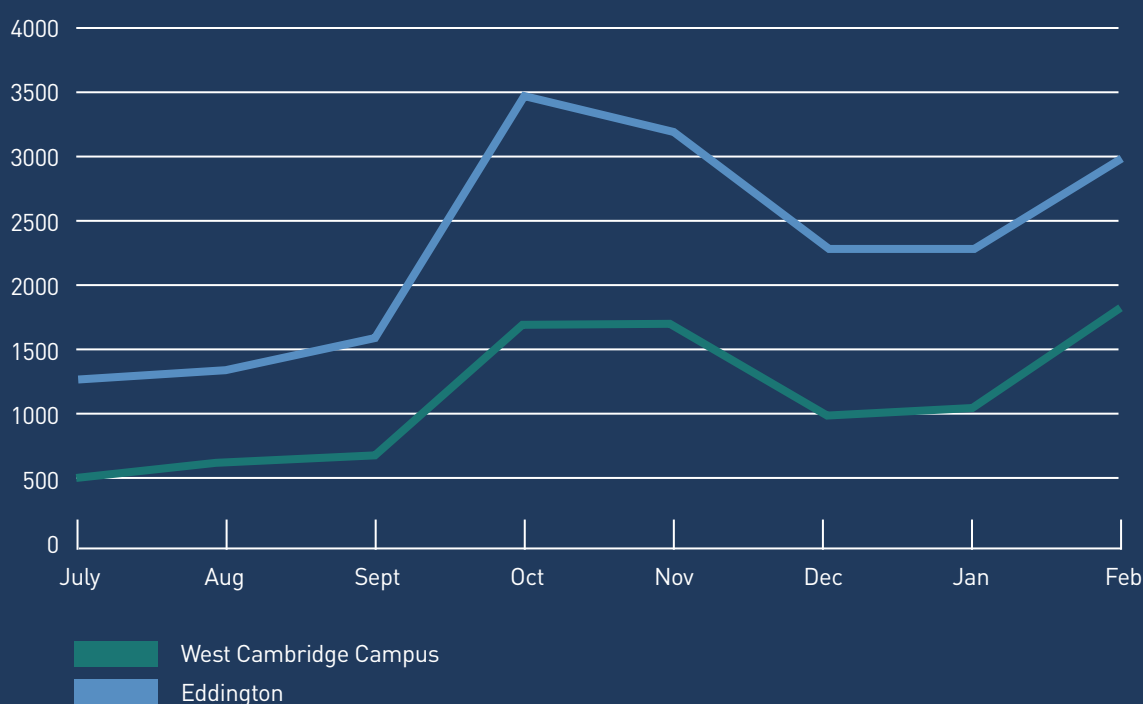


Figure above: Voi Usage at Eddington and West Cambridge sites July 2021-Feb 2022



## BIKE CARGO TRIAL / SUPPORT — DEBBI BONDI, GREATER CAMBRIDGE PARTNERSHIP (GCP):

The GCP were awarded funding for 30 eCargo bikes through the Department of Transport's eCargo Bike Grant Fund, with match funding used to set up the scheme and cover running costs.

The procurement of four new EAV 4-wheeled cargo bikes for first mile collections was won by Zedify. The vehicles are being used daily in the city centre for deliveries and parcel/goods collections. These bikes look like a hybrid between a micro-van and a cargo bike. The GCP also has a 'try before you buy' scheme up and running, which

interest. However, seven cargo bikes went directly to Cambridge University and Cambridge City Council, for use by various departments. Both organisations committed to taking and using the bikes before we placed the initial bid and have therefore been straightforward to manage.

Regarding pool bikes for use by various other organisations and shared bikes for families: these have proved more time consuming to establish but there has been significant learning about matters including insurance, shelters and storage



Zedify eCargoBike

is managed by Outspoken Cycles. Rentals are 1-2 weeks for families and 1-2 months for businesses. The family scheme has been very successful, with a waiting list and positive feedback. The business bikes have had fewer enquiries and have been harder to promote. The GCP is working to identify the reasons for this, and how we can gather more

areas, charging, locks and booking systems. In addition, attracting interest and reaching relevant potential users has taken longer than anticipated. Questions remain about deployments in residential areas where cyclists may need a cargo bike every so often leading to associated issues about security and re-purposing of road space.

## TRIAL OF E-SCOOTERS ON CAMPUSES / KEY SITES — JESS CUNNINGHAM, UNIVERSITY OF CAMBRIDGE

In June 2021, the University of Cambridge in partnership with Voi and the CPCA established 3 hubs for e-scooters and e-bikes to support the extension of the existing Voi scheme, enabling trips to and from Eddington and West Cambridge.

As the city reopened after COVID lockdowns and students returned to Cambridge, the scheme saw significant growth (see figure on page 12).

The scheme provides connectivity for a range of needs, for example students travelling between college and lectures/labs as well as staff travelling from the train station to the West Cambridge site, or for Eddington residents wishing to make use of the wider city facilities and services.

The University is working with Voi to consider extension of the scheme within its sites as well as other opportunities for staff to use the bikes for short business journeys across the city.



Delivery bicycle for use by the University

# 03 Highlighting opportunities and risks

Experiences from the aforementioned examples highlight opportunities as well as risks for expanding and delivering micro mobility in Cambridge

## OPPORTUNITIES

- **Modal shift / reduced congestion** – opportunities for greater multi-modal journeys due to links for first and last mile and connections with other transport facilities (train and longer bus journeys)
- **Improved local air quality / reduced local carbon emissions** because of decreased use of vehicles with internal combustion engines
- **More flexible journey planning** with the provision of easy-to-use ‘final mile’ transport
- **More effective deliveries / freight movement within the city**, expanding on an existing network of delivery companies such as Zedify and Oxwash, and the University’s own delivery bikes
- **Integration with other transport modes** with connectivity in terms of planning, pricing and cost – e.g., via adding micro mobility to Mobility as a Service (MaaS).

In addition to these opportunities, although not discussed via a case study in this paper, short-term cycle hire in the city should also remain under consideration as a relevant micro mobility offering.

Bicycle hire may open final mile transport to those who are otherwise nervous of using e-scooters. However, it is worth considering that Voi offers e-cycles for hire but these are less popular, so a question remains as to the possible demand for cycle hire in Cambridge.

# 94%

94% of accidents on e-scooters took place where there was no trial in the local authority area, i.e., they were privately owned scooters.

<sup>2</sup> RESPA 2022 [UK E-Scooter Safety Report, page 2](#)

<sup>3</sup> Ibid, page 2

## RISKS

There are perceived and actual risks of using micro mobility modes such as e-scooters. With regards to e-scooters specifically, a frequent worry is of their safety. However, research by RESPA records that in comparison to bicycles and motorbikes, e-scooters have a lower incidence of accidents<sup>2</sup>.

Additionally, 94% of accidents on e-scooters took place where there was no trial in the local authority area, i.e., they were privately owned scooters.

Primary risks may include:

- **Unsafe use:** e.g., two riders on one scooter, drinking and scooting, use on pavements and in pedestrianised areas.
- **Conflict with other forms of transport:** this can be exacerbated by insufficient road space allocation for non-car modes. Data from RESPA highlights that the majority of accidents on e-scooters was on single carriageway roads, which they assume to have poor separation between vehicular / non-vehicular traffic.
- **Viability:** Integration of micro mobility modes into the transport mix needs to be well managed so that an excess of transport choices does not lead to the collapse / non-viability of different modes we are trying to promote.
- **Collision:** although overall rates of accidents with e-scooters is low, 79% of accidents were a result of collision between an e-scooter and motorised vehicle<sup>3</sup>.
- **Reduction of active travel:** such as walking and cycling by replacement with e-scooters (although other micro mobility modes such as cargo bikes, roller blading and e-bikes still require varying degrees of activity).
- **Space particularly for storage of micro mobility 'vehicles':** especially within retail areas.
- **Lack of micro mobility freight network:** and links to future consolidation sites that do not infringe upon existing personal travel networks that do not always have the capacity or size to accommodate larger forms of micro mobility (e.g., foot and cycleways).



**Integration of micro mobility modes into the transport mix needs to be well managed.**

## 04 A call to action

**What can we do to embrace these new forms of transport?**

Action is needed across national government, local government and local employers and institutions to embrace these new forms of transport with a focus on the safe, equitable, and sustainable adoption of micro mobility.



**We need to  
recognise that  
one size does not  
fit all - allowing  
for flexibility.**



## NATIONAL GOVERNMENT SHOULD:

- Introduce a regulatory regime that focuses on the safe, equitable, and sustainable adoption of micro mobility. We welcome provisions set out within the Queen's Speech (May 2022) to legalise and regulate light electric vehicles. These plans should:
  - Continue to make use of scaled trialling to inform decision making. As this paper has explored, the use of pilots can help understand micro mobility's operability in a city environment – generating learning around infrastructure design, enforcement of rule breaking and different rules for different spaces
  - Establish a new low-speed zero emission vehicle category which allows for sensible rules to be established around key factors such as a minimum age of users, maximum speeds, lighting requirements and vehicle registration. This needs to address the challenges of conflicting infrastructure usage, for example where wide and fast commercial cargo bikes (like the Zedify scheme) use the narrower cycle lanes where there is not room to pass a conventional cycle or scooter headed in the opposite direction, as this may discourage some users
  - Recognise that one size does not fit all – allowing for the flexibility to introduce different rules for different types of micro mobility vehicles

## LOCAL AUTHORITIES SHOULD:

- Develop forthcoming transport plans that set out a defined role for micro mobility in our networks – this should include:
  - An ambition to transform the city's infrastructure network and design to make micro mobility, alongside active travel options like walking and cycling, as attractive as possible – for example through improving road space, junction design and secure plentiful parking
  - Road hierarchy prioritisation over private cars
- Providing local support for rental / leasing that offers well managed and affordable access to e-scooters:
  - Support can be through financial input / subsidy, which could be drawn from pollution / congestion charging
- Improving oversight of road and cycleway repair – in some cases road surfaces are not safely negotiable by e-scooter (which have limited suspension)
- Incorporate micro mobility into the design of mobility hubs such as Park and Ride sites, Train Stations, and other interchanges
- Develop Mobility as a Service offer to include micro mobility and all other modes.

## EMPLOYERS AND OTHER INSTITUTIONS SHOULD:

- Extend rental / leasing provision into major employment locations and key campuses, building upon learning from how this has worked well under the Voi trial
- Developers and others involved in master-planning new developments in the city region should pro-actively consider how micro mobility can be designed into transport within developments, and also a part of multi-modal onward journeys from new developments



**We welcome provisions set out within the Queen's Speech (May 2022) to legalise and regulate light electric vehicles.**

# APPENDIX & CREDITS

## Appendix

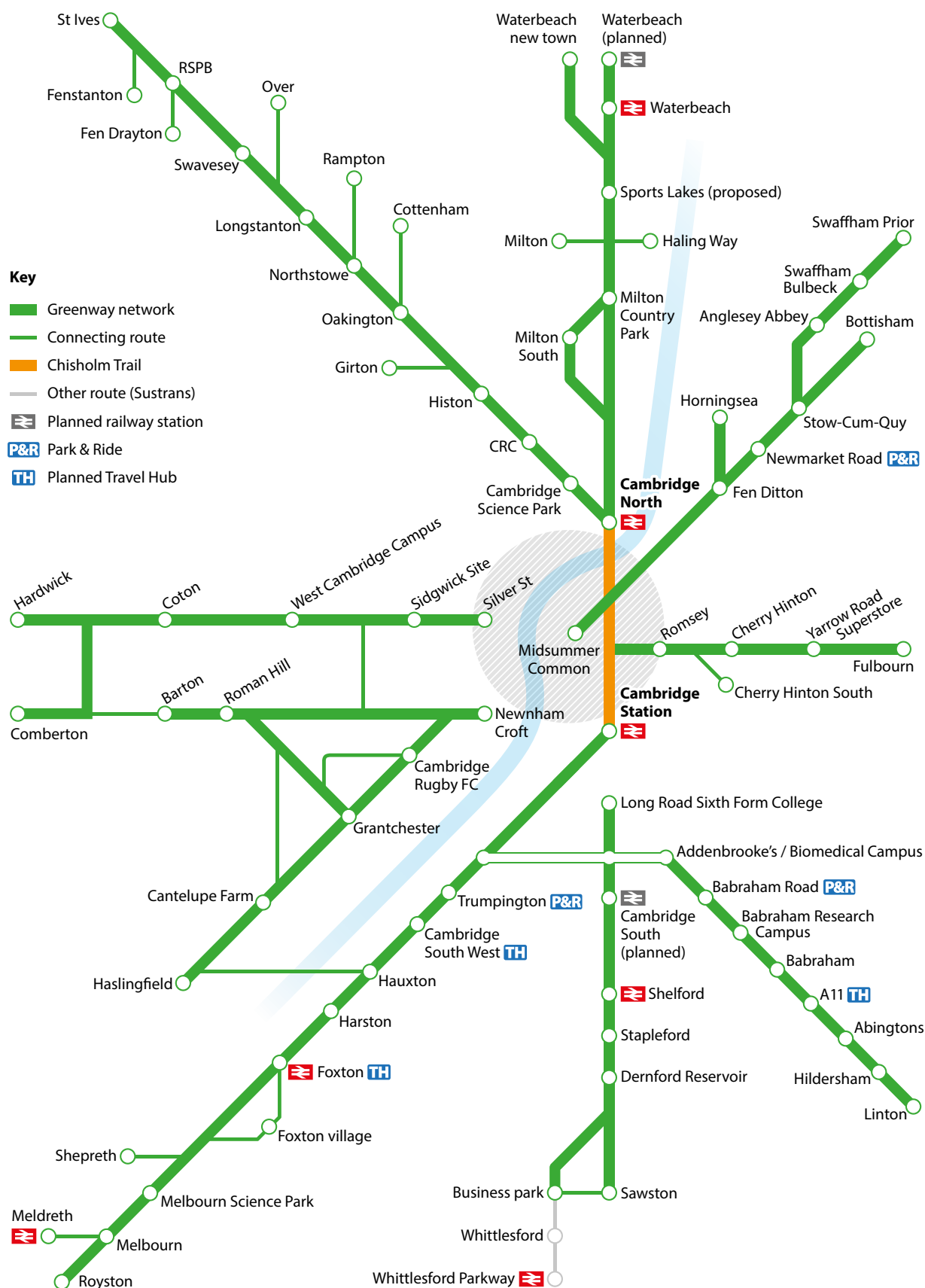
Greenways network map, see page 19

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# Greenways network

Summer 2021





August 2022